

910015

10/523108

DT05 Rec'd PCT/PTO 03 FEB 2005

SPECIFICATION

ANTENNA DEVICE AND PORTABLE TELEPHONE

T.H. This application is a 371 of PCT/JP03/08543 filed on 07/04/2003.

5 TECHNICAL FIELD

The present invention relates to antenna devices for portable telephones utilizing a plurality of frequency bands.

BACKGROUND ART

10 In conventional antennas for portable telephones, for example, monopole antennas and helical antennas are used. Among these configurations, a configuration in which antenna devices are directly contacted and connected with each other is disclosed in Japanese Laid-Open Patent Publication 261,318/1999.

15 In recent years, in shifting the portable telephone systems from PDC (personal digital cellular) to CDMA (code division multiple access), dual mode portable telephones have been developed, in which both the PDC and CDMA systems can be utilized. In these systems, although the electric wave frequency bands used for the transmission and reception are
20 different from each other, in a case in which information communication is performed in a predetermined frequency band, the impedance must be matched in these frequency bands. Consequently, because the system is generally designed as a guide such that VSWR (voltage standing wave ratio) in the frequency band in use becomes at least three or less than three,
25 it is necessary to design the system to have VSWR of three or less than